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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/447,378	11/23/1999	RYUJI NISHIKAWA	005586-20019	3746

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EXAMINER	
QI, ZHI QIANG	
ART UNIT	PAPER NUMBER
2871	

DATE MAILED: 11/29/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/447,378	NISHIKAWA ET AL.	
	Examiner	Art Unit	
	Mike Qi	2871	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *06 October 2005*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-5,10,11,15-17,19,20,24 and 39* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☒ Claim(s) *24* is/are allowed.

6)☒ Claim(s) *1-5,10,11,15-17,19,20 and 39* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date *10/6/05;*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after allowance or after an Office action under *Ex Parte Quayle*, 25 USPQ 74, 453 O.G. 213 (Comm'r Pat. 1935). Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, prosecution in this application has been reopened pursuant to 37 CFR 1.114. Applicant's submission filed on Oct. 6, 2005 has been entered.

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

2. Claims 1-3, 15 and 16 are rejected under 35 U.S.C. 102(e) as being anticipated by US 5,995,176 (Sibahara).

Regarding claims 1 and 15, Sibahaea discloses (col.4, line 63 –col.5, line18; Fig.8) a liquid crystal display device for displaying by controlling the orientation of a liquid crystal by means of a plurality of pixel electrodes formed for each pixel (Eij) and

an opposing electrode (CE) disposed to oppose the plurality of pixel electrode (Eij) with the liquid crystal (M) therebetween comprising:

- an orientation divider (the opening 81 in the pixel electrode Eij functions as an orientation divider) for dividing an orientation direction of the liquid crystal in a single pixel into a plurality of directions;
- a light-shielding film (6) which is disposed to overlap with boundaries of the orientation directions of the liquid crystal formed by the orientation divider, the light-shielding film overlapping the orientation divider in the region other than the space region along an extension direction of the orientation divider;
- light-shielding film being a conductive material (made of a conductive layer).

Regarding claims 2-3 and 16, Sibahaea discloses (col.4, line 63 –col.5, line18; Fig.8) a liquid crystal display device for displaying by controlling the orientation of a liquid crystal by means of a plurality of pixel electrodes formed for each pixel (Eij) and an opposing electrode (CE) disposed to oppose the plurality of pixel electrode (Eij) with the liquid crystal (M) therebetween comprising;

- liquid crystal (M) is sealed between a first substrate (1) and a second substrate (2) which are disposed so as to oppose each other;
- the first substrate (1) has gate signal lines (GL), drain signal lines (DL), and switching elements (Qij) connected to the gate signal lines (GL) and the drain signal lines (DL);
- pixel electrodes (Eij) are connected to the switching elements (Qij);

- opposing electrode (CE) is formed on the second substrate (2) to oppose the liquid crystal;
- the orientation divider (opening 81 in the pixel electrode Eij functions as an orientation divider) divides the orientation direction of the liquid crystal by generating an electric field with the common electrode (CE) which would be inclined with respect to the normal line of the pixel electrode (Eij) and/or the opposing electrode (CE).

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

4. Claims 10, 11, 19 and 20 are rejected under 35 U.S.C. 103(a) as being unpatentable over US 5,995,176 (Sibahara) in view of US 6,661,488 B1(Takeda et al).

Regarding claims 10, 11, 19 and 20, Sibahara teaches the invention set forth above. Sibahara further discloses col.4, line 63 –col.5, line18; Fig.8) a liquid crystal display device for displaying by controlling the orientation of a liquid crystal by means of a plurality of pixel electrodes formed for each pixel (Eij) and an opposing electrode (CE) disposed to oppose the plurality of pixel electrode (Eij) with the liquid crystal (M) therebetween comprising:

- the orientation divider (opening 81 in the pixel electrode Eij functions as an orientation divider) has a width different from that of the light shielding film (6) as shown in Fig.8A;
- the liquid crystal (M) is vertical aligned as shown in Fig.8B, so that the alignment layer (3, 4) are vertical orientation film is formed to cover the pixel electrodes (Eij).

Sibahara does not explicitly disclose that the liquid crystal has a negative anisotropy of dielectric constant.

Takeda discloses (abstract) that a vertical alignment liquid crystal display device uses a liquid crystal having a negative anisotropic dielectric constant, and such that the device having an improved viewing angle characteristic.

Therefore, it would have been obvious to those skilled in the art at the time the invention was made to modify the liquid crystal display of Sibahara with the teaching of using liquid crystal having a negative anisotropic dielectric constant as taught by Takeda, since the skilled in the art would be motivated for improving the viewing angle in the vertical alignment liquid crystal display (see abstract).

5. Claims 4 and 39 are rejected under 35 U.S.C. 103(a) as being unpatentable over US 5,995,176 (Sibahara) in view of JP9-152583 (Koma).

Regarding claims 4 and 39, Sibahara teaches the invention set forth above. Sibahara lacks that the orientation control window (orientation divider) is formed by forming an opening in the opposing electrode.

Koma discloses (abstract; Fig.2) that the orientation control window (orientation divider) is formed by forming an opening (25) in the opposing electrode (common electrode (24), so as to prevent the effect of the orientation control window from being lost that means maintaining the orientation control effect so as to secure the viewing angle characteristic.

Therefore, it would have been obvious to those skilled in the art at the time the invention was made to modify the liquid crystal display of Sibahara with the teaching of forming the orientation control window in the common electrode as taught by Koma, since the skilled in the art would be motivated for secure the effect of the orientation control window so as to secure the viewing angle characteristic.

6. Claims 5 and 17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sibahara and Koma as applied to claims 1-4 and 15-16 above, and further in view of US 5,847,381 (Isogai).

Regarding claims 5 and 17, Sibahara and Koma teach the invention set forth above except for the light-shielding film is the drain signal line.

Isogai discloses (col.14, lines 43 – 54; Figs.1, 3) that the drain line (20) serves as a light-shielding film for protecting the parts other than the switching elements (photodiode) (the thin film transistor would be an obvious variation as the switching element) from light.

Therefore, it would have been obvious to those skilled in the art at the time the invention was made to modify the liquid crystal display of Sibahara and Koma with the teachings of using drain signal line as light-shielding film as taught by Isogai, since the

skilled in he art would be motivated for protecting the parts other than the switching element (see col.14, lines 43 – 54; Figs.1, 3).

Allowable Subject Matter

7. Claim 24 is allowed.

8. The following is a statement of reasons for the indication of allowable subject matter:

The prior art of record neither discloses nor teaches a liquid crystal display device comprising various elements, more specifically, as the following:

the drain signal lines are disposed to overlap the orientation control window's extension region along the longitudinal direction of the extension region as shown in Fig.4 [claim 24];

The references such as US 5,995,176 (Sibahara) and US 6,661,488 (Takeda et al) read the limitations as claimed set forth above. However, the prior art of record do not show the drain signal line as a light-shielding film is disposed to overlap the orientation divider along the extension direction of the orientation divider as shown in Fig.4 so as to increase the contrast ratio.

Conclusion

9. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

10. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Mike Qi whose telephone number is (571) 272-2299. The examiner can normally be reached on M-T 8:00 am-5:00 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Robert Kim can be reached on (571) 272-2293. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Mike Qi
November 21, 2005

ANDREW SCHECHTER
PRIMARY EXAMINER